Immune Globulin (Human) Reference Chart

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	IVIG	SCIG	IVIG / SCIG
Product Name	Carimune® NF	Flebogamma® 5% DIF / Flebogamma® 10% DIF	GAMMAGARD® S/D IgA < 1 µg/mL[3]
Manufacturer/ Supplier	CSL Behring	Grifols	Shire
Contact Number	(800) 504-5434	(888) 474-3657	(800) 423-2862
Sizes	3 g[1], 6 g, 12 g	2.5 g, 5 g, 10 g, 20 g / 5 g, 10 g, 20 g	5 g, 10 g
Storage	Not to exceed 30°C (86°F). Do not freeze. Do not shake.	2° to 25°C (36° to 77°F). Do not freeze.	Not to exceed 25°C (77°F). Do not freeze. Do not shake.
Form	Lyophilized	Liquid	Lyophilized
Reconstitution Fluid	Sterile Water, 5% Dextrose, 0.9% Saline	N/A	Sterile Water for Injection
Concentration Options	3%, 6%, 9%,12%	5% / 10%	5% or 10%
Filtration	Filtering is acceptable but not required. Pore size of ≥ 15 microns will be less likely to slow infusions, especially with higher concentrations. Antibacterial filters (0.2 microns) may be used.	Not required	Product supplied with a transfer device and administration set that includes an integral airway and a 15 micron filter.
Indications	PI, acute and chronic ITP	PI	PI, adult chronic ITP, B-cell CLL, Kawasaki disease
Contraindications	History of anaphylactic or severe systemic reactions to human immune globulin. IgA deficiency with antibodies to IgA. Administer with utmost caution to persons with IgA deficiency (especially with known antibody against IgA) or hypersensitivity to immunoglobulins, due to the risk of severe immediate hypersensitivity reactions including anaphylaxis.	History of anaphylactic or severe systemic hypersensitivity reactions to human immune globulin. IgA-deficient patients with antibodies to IgA and a history of hypersensitivity.	History of anaphylactic or severe systemic hypersensitivity reactions to the administration of GAMMAGARD S/D with < 1 µg/mL IgA in a 5% solution.[3]
Initial Infusion Rate[1]	0.5 mg/kg/min	0.01 mL/kg/min	The recommended initial 5% solution infusion rate is 0.5 mL/kg/hr. Patients who tolerate the 5% concentration at 4 mL/kg/hr can be infused with 10% concentration starting at 0.5 mL/kg/hr.
Other Administration Information[2]	Infuse product at approximately room temperature.	Several vials may be pooled into an empty sterile IV solution container by using aseptic technique.	Begin administration as soon as possible within 2 hour if reconstitution is performed aseptically outside of a sterile laminar air flow hood.[4] Administer the reconstituted material at room temperature.
Compatibility Issues[2]	Administer by separate infusion line. No other medications or fluids should be mixed with product.	Do not dilute with other IV fluids. Do no inject other medications into IV tubing being used for Flebogamma, or add any medications or other IV fluids to the Flebogamma infusion container. Infuse through a separate IV line.	Administer separately from other drugs/medications. Do not mix the product with human IVIG products from other manufacturers.
IgA Content	720 µg/mL (6% concentration)	< 50 µg/mL / < 100 µg/mL	< 1 µg/mL (5% concentration)
Sugar Content	Sucrose	D-sorbitol	20 mg/mL glucose (5% concentration)
Osmolality	3% 6% 9% 12% mOsm/kg in Sterile Water: 192 384 576 768 mOsm/kg in 0.9% NaCl: 498 690 882 1074 mOsm/kg in 5% Dextrose: 444 636 828 1020	240–370 mOsm/L	5% concentration: 636 mOsm/L 10% concentration: 1250 mOsm/L

	IVIG	SCIG	IVIG / SCIG
Product Name	GAMMAPLEX® 5% / GAMMAPLEX® 10%	Octagam® 5% / Octagam® 10%	Privigen®
Manufacturer/ Supplier	Bio Products Laboratory	Octapharma	CSL Behring
Contact Number	(866) 398-0825	(800) 826-6905	(800) 504-5434
Sizes	5 g, 10 g, 20 g	1 g, 2.5 g, 5 g, 10 g, 25 g[5] / 2 g, 5 g, 10 g, 20 g	5 g, 10 g, 20 g, 40 g
Storage	2° to 25°C (35.6° to 77°F). Do not freeze. Do not shake.	2° to 25°C (36°F to 77°F). Do not freeze.	Room temperature up to 25°C (77°F) to expiration date on label.[10] Do not freeze. Do not shake.
Form	Liquid	Liquid	Liquid
Reconstitution Fluid	N/A	N/A	N/A
Concentration Options	5% / 10%	5% / 10%	10%
Filtration	Not required	If a filtered infusion set is used (not mandatory), the filter size must be 0.2 to 200 microns.	Not required
Indications	PI, adult chronic ITP	PI / adult chronic ITP	PI, chronic ITP
Contraindications	History of anaphylactic or severe systemic reaction to the administration of human immunoglobulin. IgA deficiency with antibodies to IgA and a history of hypersensitivity. 5% concentration only: Hereditary intolerance to fructose, also in infants and neonates for whom sucrose or fructose tolerance has not been established.	History of acute severe hypersensitivity reactions to human immunoglobulin. IgA-deficient patients with antibodies against IgA and a history of hypersensitivity. Octagam 5%: History of acute hypersensitivity reaction to corn, including corn allergy (Octagam 10%: Warning/Precaution for patients with corn allergy).	History of anaphylactic or severe systemic reactions to human immunoglobulin. Hyperprolinemia (Privigen contains L-proline as a stabilizer). IgA-deficient patients with antibodies to IgA and a history of hypersensitivity.
Initial Infusion Rate[1]	0.01 mL/kg/min (0.5 mg/kg/min) / 0.005 mL/kg/min (0.5 mg/kg/min)	0.5 mg/kg/min / 1 mg/kg/min	0.5 mg/kg/min (0.005 mL/kg/min)
Other Administration Information[2]	Administer at room temperature. Infuse using a separate infusion line. An infusion pump may be used to control the rate of administration. For administration of large doses, pool multiple vials using aseptic technique. 5% concentration only: Begin infusion within 2 hours after pooling.	Administer at room temperature.	Infuse at room temperature. Do not shake. Vials may be pooled using aseptic technique (begin infusion within 8 hours of pooling). Contains no preservative; use promptly once vial is entered.
Compatibility Issues[2]	Do not mix with other IVIG products or other intravenous medications. May be diluted with Dextrose Injection, USP (D5W). Infusion line can be flushed with D5W or 0.9% Sodium Chloride for Injection, USP.	Administer separately from other drugs or medications. The infusion line may be flushed before or after Octagam administration with either normal saline or 5% dextrose in water (D5W).	Do not mix with other IVIG products or other intravenous medications. May be diluted with Dextrose Injection, USP (D5W). Infusion line can be flushed with D5W or 0.9% Sodium Chloride for Injection, USP.
IgA Content	< 10 µg/mL / < 20 µg/mL	Not more than 200 µg/mL / Average of 106 µg/mL	≤25 mcg/mL
Sugar Content	Sorbitol, glycine, polysorbate 80 / Glycine, polysorbate 80	Maltose 100 mg/mL[6] / Maltose 90 mg/mL[6]	None; stabilized with L-proline
Osmolality	Not less than 240 mOsmol/kg (typically 420 to 500 mOsmol/kg) / Not less than 240 mOsmol/kg (typically 280 mOsmol/kg)	310-380 mOsmol/kg	320 mOsmol/kg (range 240 to 440 mOsmol/kg)

	IVIG / SCIG	SCIG	IVIG / SCIG
Product Name	GAMMAGARD LIQUID®	GAMMAKED™	GAMUNEX®-C
Manufacturer/ Supplier	Shire	Kedrion Biopharma	Grifols
Contact Number	(800) 423-2862	(855) 353-7466	(888) 474-3657
Sizes	1 g, 2.5 g, 5 g, 10 g, 20 g, 30 g	1 g, 2.5 g[7], 5 g, 10 g, 20 g	1 g, 2.5 g, 5 g, 10 g, 20 g, 40 g
Storage	2° to 8°C (36° to 46°F) for up to 36 months. Up to 25°C (77°F) for up to 24 months.[4] Do not freeze. Do not shake.	2° to 8°C (36° to 46°F) AND at temperatures not to exceed 25°C (77°F) for up to 6 months.[4] Do not freeze. Do not shake.	2° to 8°C (36° to 46°F) AND at temperatures not to exceed 25°C (77°F) for up to 6 months.[4] Do not freeze. Do not shake.
Form	Liquid	Liquid	Liquid
Reconstitution Fluid	N/A	N/A	N/A
Concentration Options	10%	10%	10%
Filtration	In-line filter optional	Not required	Not required
Indications	IVIG: PI, MMN / SCIG: PI	IVIG: PI, ITP, CIDP / SCIG: PI	IVIG: PI, ITP, CIDP / SCIG: PI
Contraindications	History of anaphylactic or severe systemic reactions to human immunoglobulin. IgA-deficient patients with antibodies to IgA and a history of hypersensitivity.	IgA deficiency with antibodies to IgA and a history of hypersensitivity. Anaphylactic or severe systemic reactions to human immunoglobulin.	Anaphylactic or severe systemic reactions to human immunoglobulin. IgA deficiency with antibodies to IgA and a history of hypersensitivity.
Initial Infusion Rate[1]	IVIG: 0.5 mL/kg/hr (0.8 mg/kg/min) / SCIG: If < 40 kg body weight: 30 mL/site at rate of 20 mL/hr/ site. If < 40 kg body weight: 20 mL/site at rate of 15 mL/hr/site.	IVIG: 0.01 mL/kg/min (1 mg/kg/min) for PI/ITP and 0.02 mL/kg/min (2 mg/kg/min) for CIDP. / SCIG: (for PI only) 20 mL/hr per infusion site.	IVIG: 1 mg/kg/min for PI/ITP and 2 mg/kg/min for CIDP. / SCIG (for PI only): 20 mL/hr per infusion site (adult) and 10 mL/hr/site (pediatric)
Other Administration Information[2]	Do not mix with other products. Do not shake. Allow product to come to room temperature before use. Do not microwave.	If dilution is required, may be diluted with 5% dextrose in water (D5W). Contents of vials may be pooled under aseptic conditions into sterile infusion bags. Use within 8 hours after pooling. Warm to room temperature prior to infusion.	If dilution is required, may be diluted with 5% dextrose in water (D5W). Contents of vials may be pooled under aseptic conditions into sterile infusion bags. Use within 8 hours after pooling. Warm to room temperature prior to infusion.
Compatibility Issues[2]	If dilution is desired, 5% dextrose in water (D5W) may be used as a diluent. Do not use normal saline as a diluent (the infusion line may be flushed with normal saline).	Infuse product by separate line without mixing with other IV fluids or medications. Do not dilute with saline.	Infuse product by separate line without mixing with other IV fluids or medications. Do not dilute with saline.
IgA Content	Average 46 µg/mL	Average 37 µg/mL	Average 46 µg/mL
Sugar Content	None; stabilized with glycine	None; stabilized with glycine	None; stabilized with glycine
Osmolality	258 mOsmol/kg	258 mOsmol/kg	258 mOsmol/kg

	SCIG	SCIG	IVIG
Product Name	CUVITRU®	Hizentra®	GamaSTAN® S/D
Manufacturer/ Supplier	Shire	CSL Behring	Grifols
Contact Number	(800) 423-2862	(800) 504-5434	(888) 474-3657
Sizes	1 g (5 mL), 2 g (10 mL), 4 g (20 mL), 8 g (40 mL)	1 g (5 mL), 2 g (10 mL), 4 g (20 mL), 10 g (50 mL)	2 mL, 10 mL
Storage	2°C to 8°C (36°F to 46°F) for up to 36 months, or room temperature (not to exceed 25°C (77°F)) for up to 12 months. Do not freeze. Do not shake.	Room temperature up to 25°C (77°F). Do not freeze. Do not shake.	2° to 8°C (36° to 46°F). Do not freeze.
Form	Liquid	Liquid	Liquid
Reconstitution Fluid	N/A	N/A	N/A
Concentration Options	20% (200 mg/mL)	20% (0.2 g/mL)	15%–18% protein solution
Filtration	Not required	Not required	Not required
Indications	PI	PI	Hepatitis A, measles (rubeola), varicella, rubella[13]
Contraindications	History of an anaphylactic or severe systemic hypersensitivity reaction to the subcutaneous administration of human immune globulin. IgA-deficient patients with antibodies to IgA and a history of hypersensitivity to human immune globulin treatment.	History of anaphylactic or severe systemic reactions to human immune globulin or to components of Hizentra, such as polysorbate 80. Hyperprolinemia (type I or II); Hizentra contains L-proline as a stabilizer. IgA-deficient patients with antibodies against IgA and a history of hypersensitivity.	History of anaphylactic or severe systemic reactions to the administration of IgG. IgA-deficient patients with antibodies to IgA and a history of hypersensitivity. Known hypersensitivity to hyaluronidase including PH20 of HYQVIA. Known systemic hypersensitivity to human albumin (in the PH20 solution).
Initial Infusion Rate[1]	For subcutaneous administration only. Refer to full prescribing information (Section 2.3, Administration) for initial infusion rate instructions.	For subcutaneous infusion only. Do not inject into a blood vessel (vein or artery). For first infusion, do not exceed maximum volume of 15 mL per hour per injection site.	For subcutaneous use only. Administer PH20 at an initial rate per site of approximately 1 to 2 mL per minute, or as tolerated. Refer to full prescribing information (Section 2.2. Administration) for 10% immune globulin initial infusion rate instructions.
Other Administration Information[2]	Allow refrigerated vials to come to room temperature. Do not dilute. Do not shake. Do not apply heat or place in microwave.	Discard all used administration supplies and any unused product immediately after each infusion. Injection sites: abdomen, thigh, upper arm and/or lateral hip.[11]	Allow refrigerated product to come to room temperature before use. Do not shake, apply heat or place in microwave.
Compatibility Issues[2]	Do not mix CUVITRU with other products.	Do not mix Hizentra with other products.	Do not mix the PH20 and 10% immune globulin into the same container prior to administration. Do not mix or administer components of HYQVIA with other products. Flush the infusion line with normal saline or Dextrose 5% in water (D5W) if required.
IgA Content	Average 80 mcg/mL	≤50 mcg/mL	Average 37 µg/mL
Sugar Content	None; stabilized with glycine	None; stabilized with L-proline	None; stabilized with glycine
Osmolality	280 to 292 mOsmol/kg	N/A	240 to 300 mOsmol/kg

	IVIG
Product Name	GamaSTAN® S/D
Manufacturer/ Supplier	Grifols
Contact Number	(888) 474-3657
Sizes	2 mL, 10 mL
Storage	2° to 8°C (36° to 46°F). Do not freeze.
Form	Liquid
Reconstitution Fluid	N/A
Concentration Options	15%–18% protein solution
Filtration	Not required
Indications	Hepatitis A, measles (rubeola), varicella, rubella[13]
Contraindications	Persons with isolated IgA deficiency. Severe thrombocytopenia or any coagulation disorder or where IM injections are contraindicated.[14]
Initial Infusion Rate[1]	See full prescribing information for dosing information.
Other Administration Information[2]	Do not administer subcutaneously or intravenously due to potential for serious reactions. Administer intramuscularly, preferably in the anterolateral aspects of the upper thigh and the deltoid muscle of the upper arm. The gluteal region should not be used routinely.
Compatibility Issues[2]	N/A
IgA Content	Not identified in prescribing information
Sugar Content	None
Osmolality	N/A

GENERAL INFORMATION

Do not mix immune globulin intravenous (human) products of differing formulations or brands. Do not use reconstituted products if particulate matter or discoloration is seen. Antibodies may interfere with response to live viral vaccines.

The information presented in this guide is not meant to serve as a guideline for patient management. Any procedures, medications or other courses of diagnosis or treatment discussed or suggested in this guide should not be used by clinicians without full evaluation of their patients' conditions and possible contraindications or dangers in use, review of any applicable manufacturer's product information, and comparison with recommendations of other authorities.

KEY

CLL	chronic lymphocytic leukemia
CIDP	chronic inflammatory demyelinating polyneuropathy
IgA	immunoglobulin A
IGIM	immune globulin intramuscular
ITP	immune thrombocytopenic purpura
IVIG	intravenous immune globulin
mL	milliliter
MMN	multifocal motor neuropathy
mOsm/kg	milliosmoles per kilogram
mOsm/L	milliosmoles per liter
N/A	not applicable
PH20	recombinant human hyaluronidase
PI	primary immunodeficiency disorders
SCIG	subcutaneous immune globulin
µg	micrograms

NOTES

[1] Additional instructions or special recommendations (e.g., administration to patients at increased risk of acute renal failure) may appear in full prescribing information; always refer to full prescribing information before initiating treatment with any of these products.

[2] Includes selected highlights only; for complete administration instructions, refer to full prescribing information.

[3] Call for availability.

[4] Total storage time depends on timing of transfer to room temperature; see full prescribing information.

[5] Manufacture of GAMMAGARD S/D with IgA < 2.2 µg/mL was discontinued after December 2012; manufacture of GAMMAGARD S/D with IgA < 1 µg/mL will continue. See full prescribing information for contraindications to GAMMAGARD S/D with IgA ≤ 2.2 µg/mL.

[6] When reconstitution is performed aseptically in a sterile laminar air flow hood, the reconstituted product may be either maintained in the original glass container or pooled into Viaflex bags and stored under constant refrigeration (2°–8°C). Check with each manufacturer on extended stability information.

[7] FFF does not currently supply this product.

[8] May store at temperatures not to exceed 25°C (77°F) for up to 6 months anytime during the 36 month shelf life.

[9] Maltose can be misinterpreted as glucose (resulting in falsely elevated glucose readings) by certain types of blood glucose testing systems. See manufacturer's warning.

[10] When stored up to 25°C (77°F), product is stable for up to 36 months as indicated by the expiration date on the packaging.

[11] Doses may be divided and infused into several sites (refer to full prescribing information for maximum number of sites to use at the same time). Injection sites in the same session should be at least two inches apart. Change the actual site of injection with each weekly administration.

[12] Packaged with 1.25 mL, 2.5 mL, 5.0 mL, 10.0 mL and 15.0 mL of recombinant human hyaluronidase (PH20), respectively.

[13] Should not be used for prophylaxis of viral hepatitis type B. Not indicated for routine prophylaxis or treatment of rubella, poliomyelitis, mumps or varicella. Not indicated for allergy or asthma in patients who have normal levels of immunoglobulin. Refer to full prescribing information.

[14] Should be given with caution to patients with a history of prior systemic allergic reactions following administration of human immunoglobulin preparations.

IG Resources

IG Reimbursement Calculator

Calculate your current Medicare intravenous immune globulin (IVIG) and subcutaneous immune globulin (SCIG) rates at **FFFenterprises.com**.

IG Living Magazine

Resources for successful living for immune globulin patients and their healthcare providers. Subscribe and view our online edition at **IGLiving.com**.

Reimbursement Question?

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IVIG & SCIG
Dosing Calculations

IVIG and SCIG dosing calculations can be confusing. To minimize potential errors, it is vitally important that physicians, pharmacists and nurses are on the same page with respect to product concentration and dosing. For all IVIG and SCIG prescriptions, there are two variables that are initially required to ensure accuracy:

1. Total number of grams prescribed
2. Concentration of IG prescribed

Once that information is received, the pharmacist and nurse can calculate the dose by focusing on the following two variables:

1. Number of grams in the vial(s) of IG being used
2. Total volume of the resulting solution

LIQUID PRODUCTS

The ready-to-infuse liquid form is manufactured in 5%, 10% and 20% concentrations and requires no reconstitution or dilution. The most important variable to confirm is the concentration being prescribed. This will dictate the total volume to be administered. Gram-volume relationships for the 12 liquid preparations are as follows:

Flebogamma DIF (5%), GAMMAPLEX (5%) and Octagam (5%)						
Concentration	**1 g**	**2.5 g**	**5 g**	**10 g**	**20 g**	**25 g**
5%	20 mL	50 mL	100 mL	200 mL	400 mL	500 mL

Flebogamma DIF (10%), GAMMAGARD LIQUID (10%), GAMMAKED (10%), GAMUNEX-C (10%), Octagam (10%) and Privigen (10%)								
Concentration	**1 g**	**2 g**	**2.5 g**	**5 g**	**10 g**	**20 g**	**30 g**	**40 g**
10%	10 mL	20 mL	25 mL	50 mL	100 mL	200 mL	300 mL	400 mL

HYQVIA (10% Immune Globulin with recombinant human hyaluronidase)						
IG Concentration	**2.5 g**	**5 g**	**10 g**	**20 g**	**30 g**
10%	25 mL	50 mL	100 mL	200 mL	300 mL
Hyaluronidase (PH20) Units	**200**	**400**	**800**	**1600**	**2400**
Hyaluronidase	1.25 mL	2.5 mL	5 mL	10 mL	15 mL

CUVITRU® (20%)				
Concentration	**1 g**	**2 g**	**4g**	**8 g**
20%	5 mL	10 mL	20 mL	40 mL

Hizentra (20%)				
Concentration	**1 g**	**2 g**	**4g**	**10 g**
20%	5 mL	10 mL	20 mL	50 mL

LYOPHILIZED PRODUCTS

Reconstitution of lyophilized (powder) preparations is required prior to administration. The proper amount of diluent is necessary to produce the correct concentration. Required volumes of diluent appear on the charts below, along with the final volumes in parentheses.

Carimune NF			
Required Diluent Volume			
Concentration	**3 g**	**6 g**	**12 g**
3%	100 mL	200 mL	400 mL
6%	50 mL	100 mL	200 mL
9%	33 mL	66 mL	132 mL
12%	25 mL	50 mL	100 mL

GAMMAGARD S/D		
Required Diluent Volume		
Concentration	**5 g**	**10 g**
5%	96 mL (100 mL)	192 mL (200 mL)
10%	48 mL (50 mL)	96 mL (100 mL)

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From our in-house teams of customer care representatives, advisors and advocates, to our national field team of territory managers, there is always a responsive, dedicated expert to take care of your questions 24/7 at (800) 843-7477.

Immune Globulin (Human)
Reference Chart

- Intravenous IG Products
- Subcutaneous IG Products
- Intramuscular IG Products

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Beginning in 1988, FFF had the goal to provide our customers and patients with counterfeit-free products. We have maintained this goal through our commitment to **Guaranteed Channel Integrity™**— our promise to purchase only from manufacturers and ship only to licensed healthcare providers, thereby protecting you and your patients from the risks of counterfeiting, drug diversion and irresponsible pricing.

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With a perfect safety track record of counterfeit-free product distribution since 1988, FFF continues to set the standard for patient safety, product efficacy, and fair pricing for the critical-care products and vaccines that improve the quality of life for the patients we serve.

- Immune Globulins
- Hyperimmune Globulins
- Coagulation
- Antithrombin
- Albumin
- Antivirals
- Influenza Vaccines
- Pediatric Vaccines
- Adult Vaccines
- Brand Pharmaceuticals
- Other Pharmaceuticals
- Oncology
- Ophthalmology
- Ancillaries
- BioSurgicals